ANALYTICAL BIOCHEMISTRY

Methods in the Biological Sciences

Volume 246, 1997

EDITOR-IN-CHIEF
William B. Jakoby

EXECUTIVE EDITORS

Assistant to the Editor-in-Chief, William S. Allison

Shelby L. Berger
Ludwig Brand
George M. Carman
Prescott Deininger
Jack E. Dixon
Howard Goldfine
Owen W. Griffith
Ueli Gubler
John A. Hanover
Carlos B. Hirschberg
Tony E. Hugli
Robert Ivarie
Barry L. Karger
Y. C. Lee
Irving Listowsky
Walter M. Lovenberg
Peter McPhie
Richard N. Perham
James F. Riordan
B. David Stollar
Bert L. Vallee
M. H. V. Van Regenmortel

William D. McElroy
EDITOR EMERITUS

Alvin Nason, Founding Editor, 1960–1977
Nathan O. Kaplan and William D. McElroy, Editorial Committee Co-Chairmen, 1978–1986

ACADEMIC PRESS

http://www.apnet.com

Copyright © 1997 by Academic Press
All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the Publisher.

The appearance of the code at the bottom of the first page of an article in this journal indicates the Publisher's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (222 Rosewood Drive, Danvers, Massachusetts 01923), for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1997 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0003-2697/97 $25.00

MADE IN THE UNITED STATES OF AMERICA

This journal is printed on acid-free paper.

CONTENTS OF VOLUME 246

NUMBER 1, MARCH 1, 1997

Determination of Association Rate Constants by an Optical Biosensor Using Initial Rate Analysis
Paul R. Edwards and Robin J. Leatherbarrow 1

Analysis of Antibody–Antigen Interactions Using Size-Exclusion High-Performance (Pressure) Liquid Chromatography *Charles G. Sanny and Joseph A. Price* 7

Identification of Endogenous Des-Arg^9-[Hyp^3]-Bradykinin in Human Plasma with Post-Source-Decay Matrix-Assisted Laser Desorption/Ionization Mass Spectrometry *H. Schlüter, D. Mentrup, I. Groß, H. E. Meyer, B. Spengler, R. Kaufmann, and W. Zidek* 15

A High Density Screening Format for Encoded Combinatorial Libraries: Assay Miniaturization and Its Application to Enzymatic Reactions *John R. Schullek, John H. Butler, Zhi-Jie Ni, Dawn Chen, and Zhengyu Yuan* 20

Quantitative Determination of Sialic Acid in the Monosialoganglioside, GM_1, by the Thiobarbituric Acid Method *Roshan L. Mattoo and Saul Roseman* 30

Analysis of Oligonucleotide Probe Affinities Using Surface Plasmon Resonance: A Means for Mutational Scanning *Björn Persson, Karin Stenhag, Peter Nilsson, Anita Larsson, Mathias Uhlén, and Per-Åke Nygren* 34

Quantitative Reverse Transcriptase Polymerase Chain Reaction for Measuring the *N*-Methylpurine–DNA Glycosylase mRNA Level in Rodent Cells *Gargi Roy, Rabindra Roy, and Sankar Mitra* 45

Analysis of the Lipidated Recombinant Outer Surface Protein A from *Borrelia burgdorferi* by Mass Spectrometry *Bernadette Bouchon, Michèle Klein, Rainer Bischoff, Alain Van Dorsselaer, and Carolyn Roitsch* 52

Use of Capillary Electrophoresis to Measure Dimerization of Glycopeptide Antibiotics
Deborah L. LeTourneau and Norris E. Allen 62

Batch Analysis of the ATP Content of Bovine Sperm, Oocytes, and Early Embryos Using a Scintillation Counter to Measure the Chemiluminescence Produced by the Luciferin–Luciferase Reaction
Donald Rieger 67

A Time-Resolved Immunofluorometric Method for the Measurement of Sialyl Lewis x-Synthesizing α1,3-Fucosyltransferase Activity *Jarkko Räbinä, Nicholas Smithers, Christopher J. Britten, and Risto Renkonen* 71

Simultaneous Determination of Dihydrofluorouracil and 5-Fluorouracil in Plasma by High-Performance Liquid Chromatography *Stephen P. Ackland, Madhu B. Garg, and R. Hugh Dunstan* 79

A Continuous Spectrophotometric Assay for Aspartate Transcarbamylase and ATPases
Colin E. Rieger, John Lee, and Joanne L. Turnbull 86

A Capillary Electrophoretic Study on the Specificity of β-Galactosidases from *Aspergillus oryzae, Escherichia coli, Streptococcus pneumoniae,* and *Canavalia ensiformis* (Jack Bean)
Reinhard Zeleny, Friedrich Altmann, and Werner Praznik 96

Characterization and Quantification of Rat Bile Phosphatidylcholine by Electrospray–Tandem Mass Spectrometry *Wolf D. Lehmann, Martin Koester, Gerhard Erben, and Dietrich Keppler* 102

Synthesis and Use of a Substrate for the Detection of Isopeptidase Activity
Ariel G. Loewy, James K. Blodgett, Frances R. Blase, and Matthew H. May 111

Microplate Chromatography Assay for Acetyl-CoA: Lysoplatelet-Activating Factor Acetyltransferase
Kazuhiko Kume, Iwao Waga, and Takao Shimizu 118

Thermodynamic Analysis of Antigen–Antibody Binding Using Biosensor Measurements at Different Temperatures *Gabrielle Zeder-Lutz, Emmanuel Zuber, Jean Witz, and Marc H. V. Van Regenmortel* 123

Specific Immobilization of Firefly Luciferase through a Biotin Carboxyl Carrier Protien Domain
Chung-Yih Wang, Sam Hitz, Joseph D. Andrade, and Russell J. Stewart 133

Fluorometric Polymerase Chain Reaction (PCR) Enzyme-Linked Immunosorbent Assay for Quantification of Immuno-PCR Products in Microplates *Christof M. Niemeyer, Michael Adler, and Dietmar Blohm* 140

NOTES & TIPS

Modification of the Laemmli Sodium Dodecyl Sulfate–Polyacrylamide Gel Electrophoresis Procedure to Eliminate Artifacts on Reducing and Nonreducing Gels *Susan Cannon-Carlson and John Tang* 146

Addition of Glycerol during DNA Exposure Enhances Calcium Phosphate Transfection
Steven P. Wilson and L. Annette Smith 148

A Systematic Comparison of Relative Promoter/Enhancer Activities in Mammalian Cell Lines
Zhong Liu, Linda M. Cashion, and Jesse J. Twu 150

Reductive Syntheses of *p*-Aminophenyl-β-D-glucoside and Its Conversion to β-Glucosyl Yariv Reagent
Jraj Ganjian and Dominick V. Basile 152

An Assay for DNA Fragmentation in Apoptosis without Phenol/Chloroform Extraction and Ethanol Precipitation *Ning Zhu and Zhou Wang* 155

NUMBER 2, MARCH 15, 1997

A High-Sensitivity, Single-Gel, Polyacrylamide Gel Electrophoresis Method for the Quantitative Determination of Glutathione Reductases *Bin Ye, Carlos Gitler, and Jonathan Gressel* 159

An Isocratic Assay for Norepinephrine, Dopamine, and 5-Hydroxytryptamine Using Their Native Fluorescence by High-Perfromance Liquid Chromatography with Fluorescence Detection in Discrete Brain Areas of Rat *Madepalli K. Lakshmana and Trichur R. Raju* 166

Serratia liquefaciens as a New Host Superior for Overproduction and Purification Using the *N*-Acetylneuraminate Lyase Gene of *Escherichia coli* *Kazumi Yamamoto, Bunsei Kawakami, Yoshihisa Kawamura, and Keiichi Kawai* 171

A Novel Method for Determination of Inorganic Polyphosphates Using the Fluorescent Dye Fura-2
Bernd Lorenz, Jessica Münkner, Marco P. Oliveira, José M. Leitão, Werner E. G. Müller, and Heinz C. Schröder 176

Matrix-Assisted Laser Desorption Ionization Time-of-Flight Mass Spectrometry as a Rapid Quality Control Method in Oligonucleotide Synthesis *Robert W. Ball and Leonard C. Packman* 185

Analysis of Fructans from Higher Plants by Matrix-Assisted Laser Desorption/Ionization Mass Spectrometry *Bernd Stahl, Alexandros Linos, Michael Karas, Franz Hillenkamp, and Martin Steup* 195

Charge-Transfer Chromatographic Study of the Complex Formation of Some Steroidal Drugs with Carboxymethyl-γ-cyclodextrin *Tibor Cserháti and Esther Forgács* 205

Analysis of 12-Oxo-phytodienoic Acid Enantiomers in Biological Samples by Capillary Gas Chromatography–Mass Spectrometry Using Cyclodextrin Stationary Phases *Dietmar Laudert, Peter Hennig, Boguslawa A. Stelmach, Axel Müller, Leo Andert, and Elmar W. Weiler* 211

Flow Cytometric Detection of Mitochondrial Dysfunction in Subpopulations of Human Mononuclear Cells
Dagmar Kunz, Claus Luley, Kirstin Winkler, Hartmut Lins, and Wolfram S. Kunz 218

Sampling Tube Device for Monitoring Intracellular Metabolite Dynamics *Dirk Weuster-Botz* 225

Resolution of Recombinant Human Interleukin 10 from Variants by Recycling Free Flow Focusing
Laureano L. Bondoc, Jr., Jeffrey P. Varnerin, and John Chu-Tay Tang 234

Improved Electrophoresis and Transfer of Picogram Amounts of Protein with Hemoglobin
Peter G. Gillespie and Susan K. H. Gillespie 239

A Fluorometric Determination Method for D,L Configurations of Per-O-Methylated Monosaccharides by Anomeric 2-Methyl-2-β-naphthyl-1,3-benzodioxole 4-Carboxylation and High-Performance Liquid Chromatography *Chen Bai, Hiroshi Ohrui, Yoshihiro Nishida, and Hiroshi Meguro* 246

Determination of 14,15-Epoxyeicosatrienoic Acid and 14,15-Dihydroxyeicosatrienoic Acid by Fluoroimmunoassay *Kasem Nithipatikom, J. R. Falck, Rama K. Bhatt, Craig J. Hanke, and William B. Campbell* 253

NOTES & TIPS

One-Tube Extraction of DNA or RNA from Agarose Gel *Elvina Matitashvili and Boris Zavizion* 260

Quantitation of Membrane Proteins in Reconstituted Vesicles Prepared from Yeast *Jeffrey L. Brodsky* 262

Removal of Chromosomal DNA by Mg^{2+} in the Lysis Buffer: An Improved Lysis Protocol for Preparing *Escherichia coli* Whole-Cell Lysates for Sodium Dodecyl Sulfate–Polyacrylamide Gel Electrophoresis *Min Chen and Philipp Christen* 263

A Mammalian Gene Expression Vector with Blue–White Selection for Efficient Subcloning in *Escherichia coli* *Zhong Liu, Linda M. Cashion, Li Zhu, and Ying Luo* 264

BOOK REVIEWS

Methods in Enzymology, Volumes 270 and 271, *High-Resolution Separation and Analysis of Biological Macromolecules.* Edited by Barry L. Karger and William S. Hancock
Reviewed by *Daniel Figeys and Ruedi Aebersold* 268

Glossary of Biochemistry and Molecular Biology, revised edition. Edited by David M. Glick
Reviewed by *Karen Usdin* 269

ERRATA

Volume 242, Number 1 (1996): Marc Fransen, Chantal Brees, Paul P. Van Veldhoven, and Guy P. Mannaerts, "The Visualization of Peroxisomal Proteins Containing a C-Terminal Targeting Sequence on Western Blot by Using the Biotinylated PTS1-Receptor," pp. 26–30 270

Volume 243, Number 1 (1996): Garry J. Rucklidge, George Milne, Shazia M. Chaudhry, and Simon P. Robins, "Preparation of Biotinylated, Affinity-Purified Antibodies for Enzyme-Linked Immunoassays Using Blotting Membrane as an Antigen Support," pp. 158–164 271

Author Index for Volume 246 272

NOTICE

The Subject Index for Volume 246 will appear in the December 15, 1997, issue as part of a cumulative index for the year 1997.